First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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PUBLIC LIBRARY NOV 27 1931 DETROIT

Faulkner Resigns From Auburn; Cord Resumes Presidency of Company

Faulkner Plans for Future Not Revealed; Cord Will Continue Plans Laid by Company Early in Year

CHICAGO, Ill., Nov. 20.—E. L. Cord, president of the Cord Corporation, announces that he again assumes the presidency of the Auburn Automobile Company, a division of the Cord Corporation, and that the resignation of R. H. Faulkner as president of Auburn has been accepted.

In returning to active management of Auburn, Mr. Cord says he is carrying out plans made at the time he went to California on a vacation several months ago.

Mr. Faulkner was with Auburn in the sales department prior to Mr. Cord's connection with Auburn in 1924. Since then Faulkner's rise has been rapid. He became president of Auburn in February, 1931.

Mr. Faulkner's future plans have not been definitely revealed, but it was made clear that his leaving Auburn is not for the purpose of becoming connected with any other company affiliated with the Cord corporation.

Mr. Cord says: "The future for the automobile business is what it always has been. I mean the public's need for automotive transportation constantly increases. There-

(Continued on Page 3)

BAY STATE TRUCK LEADER ASSAILS R. R. COMPETITION

Springfield, Mass., Nov. 20.—Day Baker, secretary of the Motor Truck Club of Massachusetts, addressed members of the Engineering Society of Western Massachusetts at a dinner meeting in Hotel Highland.

Mr. Baker declared that the competition of the railroads with the growing trucking industry was of the deadly sort which aimed to wipe out the trucking business and he cited specific instances in proof of his point.

He recalled the days when the

(Continued on Page 3)

Manufacturers Expand Salvage Program With Appointment of Official Yards for Junking Cars

Resumes Presidency

E. L. CORD, head of the Cord Corporation, has resumed active management of the Auburn Automobile Company, following the resignation of President Faulkner

Decision to Permit the Sale of Salvaged Parts Opens Way to Profitable Operation of Junk Depots

NEW YORK, Nov. 20.—Automobile manufacturers are developing plans to expand their car-salvage program as a result of a survey in various parts of the country just completed by H. R. Cobleigh upon the recommendation of the sales managers' committee of the National Automobile Chamber of Commerce.

Mr. Cobleigh is preparing a report and recommendations for the directors of the chamber. In discussing the matter with press representatives, he said:

"How to retire and economically dispose of cars that have outlived their usefulness and become a menace to safety on the highways, is one of the keenest problems facing the industry. It is not a question of getting them away from owners, for they are continually trading them in for better transportation. The difficulty has been to persuade car dealers to scrap them.

"Almost invariably they are taken in by dealers at more than their real value. To minimize their loss they have resold them as automobiles where possible. Even when they have been willing to dispose of them as junk, they have had no guarantee that automobile wreckers would not resell them entire, putting them on the market again and again, to continually reappear at dealers' showrooms as trade-ins. It was to stop this vicious cycle that dealers in several cities have operated co-operative salvage yards to insure destruction of junk cars.

"Still there remained the deal-

(Continued on Page 5)

WILLYS-OVERLAND REPORTS INCREASED DEALER INTEREST

Toledo, O., Nov. 20.—Closely following the announcement that sales of Willys-Overland products in October exceeded September sales by 37 per cent. and were 94 per cent. greater than October of last year, comes the statement that important distributor and dealer connections closed within the last few weeks indicate a remarkable new interest in the value of the company's franchise.

"We have only recently closed new distributor contracts in ten metropolitan points in addition to signing an impressive number of new dealers," says H. B. Harper, vice-president in charge of sales. "It is not alone the fact that we have signed these new accounts that presents such a splendid outlook for Willys-Overland, but more important the fine standing of the indi-

(Continued on Page 5)

Stewart-Warner Introduces Normally Energized Brake System

CHICAGO, Nov. 20.—Coincidental with the introduction of its power unit, described in yesterday's Automotive Daily News, came announcement of a new normally energized braking system from the Stewart-Warner organization.

In yesterday's Automobile Daily News the Stewart-Warner power unit was described and when it is considered that the power unit provides very low pedal pressure and great reserve travel, it can be understood that Stewart-Warner adopted a normally energized system instead of a self energizing type.

The brake layout shown herewith is extremely simple, using small bearings, is rigid, and there is an absence of binding on the cross-shafts. The system consists of four two-shoe brakes, the shoes being forgings and actuated at the wheels by cams.

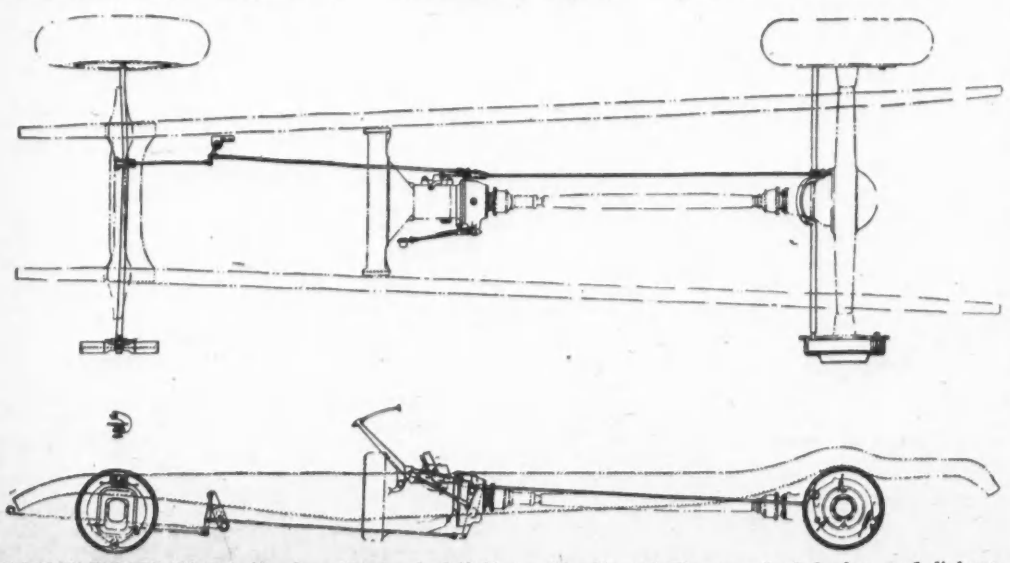
There is a cross-shaft in front, a cross-shaft in the rear and these are connected to the operating pedal

(Continued on Page 3)

PLYMOUTH NOW ON DISPLAY WILL APPEAR AT SHOW

Detroit, Nov. 20.—A statement made today by Harry Moock, general manager of the Plymouth Motor Corporation, declares that "The various models of the new floating

(Continued on Page 4)



HERE IS THE PLAN and side view of power installation with Stewart-Warner wheel brakes and linkage

N. A. C. C. APPROVES REVISION OF STANDARD WARRANTY

NEW YORK, Nov. 20.—Warranty practices in the automobile industry would be simplified and standardized under a plan which has been recommended by the industry's sales managers and endorsed by directors of the National Automobile Chamber of Commerce for adoption by all passenger car manufacturers.

Under the new plan, motor car buyers will receive protection against mechanical defects for a period of ninety days after purchase of the car or until the vehicle has traveled 4,000 miles, whichever event shall occur first. The terms of the old warranty agreement were heard on a flat agreement of ninety days.

The proposed plan protects car buyers against mechanical defects that might be discovered during the period of contract, with the exception of defects in tires, which are covered by the guarantee of tire manufacturers. Under the terms of the old warranty, no responsibility was assumed by the automobile manufacturer for the failures of rims, electric apparatus and certain accessories.

Under the proposed Owner's Service Policy, provision is made for:

1. Correction of defects in ma-

(Continued on Page 4)

FORD BUYS SITE FOR NEW VIRGINIA ASSEMBLY PLANT

Washington, Nov. 20.—The Ford Motor Company has bought a five-acre tract in Alexandria, Va.

The large Ford plan on Pennsylvania Avenue here has been sold to the government and must be vacated in April.

The large Ford plant on Penntomac River and the channel will permit ocean-going vessels to enter. It is only a short distance from the business center of Washington.

Rumors were current today that the company would build a new assembly and distribution plant on the site and that about 160 men will be employed.

METROPOLITAN S. A. E. DISCUSSED VALUE OF LIGHTER VEHICLES

By J. RUSSELL WALSH

New York, Nov. 20.—"Most of the vehicles being built today have been increased in size and weight every year since their first introduction to the trade, making it necessary to either increase the size of the engine, increase the compression ratio, piston displacment or the rear axle ratio to obtain the desired performance. Very little consideration has been given to the car weight, yet this factor is very important."

These comments were made by Frank Jardine, chief engineer, castings division, Aluminum Company of America, before the regular monthly meeting of the Metropolitan Section, Society of Automotive Engineers, which was held at the A. W. A. Clubhouse here tonight.

"A decrease of 10 per cent. in car weight," the speaker continued in discussing "The Possibilities of Light Alloys in Motor Vehicle Construction," "will result in an increase of approximately 12 per cent. in car performance and a reduction in fuel consumption of approximately 20 per cent."

Referring to the work done in the past year in the development of the "tear-drop" car, it was pointed out that by carrying streamlining to the extreme, real advantages in maximum speed with minimum power can be obtained. This method of obtaining better performance at high speed is quite promising, but is not so satisfactory at low speeds. The properly streamlined car is far from what is commonly accepted as conventional and there seems to be no way of deciding whether or not such a change would meet with public favor.

The cost of aluminum is slightly higher than the materials in more common use, but by careful engineering, this cost can be held to a point ranging from 15 to 25 cents per pound weight saved. The weight saving possible is, in most cases, Mr. Jardine stated, approximately 50 per cent. of the iron or steel replaced by aluminum.

In the truck and bus field, Mr. Jardine explained, the operator is vitally interested in pay-load, cost of operation, and cost of maintenance. Highway weight limitations have also made necessary the reduction of gross weights. Despite these considerations the truck manufacturers have been slow to adopt light alloys for chassis construction, which make it possible to meet weight restrictions in cases where they handicap the operator, or to permit the operator to increase the pay load.

H. V. Middleworth was elected special representative for the National Nominating Committee with G. W. Round and Carl F. Scott alternates. A. L. Beall was elected representative on the section committee.

RAILROADS WOULD TAX ALL TRUCKS, BUSES ON ONTARIO HIGHWAYS

Montreal, Nov. 20.—Regulation of motor truck transportation in Ontario was forecast yesterday by Premier George S. Henry when twenty-seven delegates of the affiliated railwaymen's organization, also representing shipment by rail associations in fifteen municipalities, waited on him at Parliament Building.

Stressing the alleged unfair competition by trucks, the delegation asked that no buses or trucks be permitted where adequate railroad transportation facilities already exist or where steam railways are willing to provide such facilities.

They asked that all buses, and trucks be placed under control, administration and supervision of a railway and municipal board or similar commission and be operated under conditions similar to that imposed on railways, especially with regard to fixing of rates and the elimination of destructive competition.

The delegation wanted all commercial vehicles using highways for revenue purposes to be taxed on basis commensurate with the use they make of highways.

Wins Promotion

JOSEPH L. HARDIG, whose appointment to the post of assistant general manager of Campbell-Ewald Company was announced in Automotive Daily News yesterday

MAGNESIUM ALLOYS SEEN AS BASIC MATERIAL FOR LIGHTER CARS

Cleveland, O., Nov. 20.—Several large automobile manufacturers plan next year to use magnesium alloys which will eliminate about one-third of the weight of the vehicle without a decrease in size or carrying power, L. B. Grant of the Dow Chemical Company, Midland, Mich., told delegates at the Conference on Metals and Alloys under the auspices of the Case School of Applied Science. The conference was sponsored by the Cleveland Engineering Society.

Magnesium alloys were developed in Germany during the war and manufacture in this country was started soon after the war ended. The metal was then largely used in airplane production and sold for $5 a pound. Today it is priced at 32 cents. During the past year more than 75,000 pounds were used in this country in the production of airplanes. An average of about twenty pounds to each airplane was used, according to Mr. Grant.

NEW BUICKS ACCLAIMED AT CANADIAN SHOWING

Ottawa, Ont., Nov. 20.—Interest taken by the public in the new products of General Motors Products of Canada, Ltd., which, according to reports received at the head office from Toronto and other Eastern cities, give distinct cause for optimism, is taken by officials of the company to be as much a sign of increased "buying interest" as of interest in the improvements in the new McLaughlin-Buick. Double the usual attention was being paid the new cars, dealers have informed the factory, and over 100,000 persons are estimated to have seen the 1932 products in show rooms.

"Reports are most encouraging," said William C. Herring, general sales manager for General Motors, "and are significant in view of the fact that McLaughlin-Buick is first of the 1932 parade of new cars, and I am led to hope that it marks a definite turn of the tide of buying sentiment, not only in the motor car world but in business generally."

STERLING GETS ORDER FOR 10 HEAVY TRUCKS

Chicago, Nov. 20.—The Sterling Motor Truck Company, Milwaukee, reports receipt of an order this week for ten heavy duty tractor-type motor trucks from the Interstate Trucking Company, Chicago. This company, it is stated, is one of the pioneers in intercity freight hauling and operates between many cities out of Chicago. During the past few years it has practically standardized on trucks made by Sterling, and, according to Sterling officials, has some thirty of their product now in use.

"OUR connection with Willys-Overland has been profitable to us. During the twenty-two years that we have been selling Willys-Overland cars, our registrations in our home county have always been near the top of the list."

—Boise Overland Co.
Boise, Idaho

Write or wire for particulars of this profit-building franchise

WILLYS-OVERLAND, INC.
TOLEDO, OHIO
Willys-Overland, Ltd., Toronto, Canada

WILLYS SIXES AND EIGHTS
WILLYS KNIGHTS
WILLYS SIX TRUCKS

SPARKS from DETROIT

Greasing the Wheels of Progress

* * *

Saving Transportation

* * *

The Last Word in Something

* * *

Chris Sinsabaugh—Detroit Editor

PAT O'DEA hasn't copyrighted this idea, but it is a new one, I believe, and he's entitled to the credit for pioneering it. It is so good and sounds so original that, with Pat's permission, the column is passing it along to dealers in other parts of the country seeking to coax winter business into their service departments.

To begin at the beginning and not forgetting that Pat O'Dea is Graham-Paige distributor in the Detroit area, O'Dea started his campaign with a direct-mail broadside to the 8,000 Graham owners in his kingdom. The broadside was an invitation to each owner to drop in to the service station on Endicott Street and have a greasing on the house—no charge, mind you; just a desire on the part of O'Dea to start his owners into the winter season properly greased.

Of course, back of this is the hope that an owner taking advantage of this free gratis for nothing proposition will discover other ills that need treatment and the service department will profit thereby.

* * *

THIS free greasing service started last Tuesday and the first day's report showed fifteen owners having additional work done. Inasmuch as the 8,000 are being approached through a mailing of 500 a day, this isn't at all a bad showing and proves Pat knows his psychology.

But this isn't the real big story. The trap is baited with stronger cheese, for in the big service station and where the grease-seekers must pass is a complete line of winter accessories, a miniature show, with some half dozen concerns exhibiting winter fitments which they sell to Graham visiting owners getting ready for winter.

There you find McAleer with automobile polishes and refinishing materials; the United States Rubber Company with safety tires; Automobile Equipment Company with car heaters, windshield defrosters, chains, robes, cigar lighters, etc.; Willard Battery with batteries; Tidewater Oil with oils and greases; National Carbon with anti-freezes, Motorola with automobile radios, and the Automobile Club of Michigan seeking new members.

Of course, it is too early to predict results, but the way it looks now O'Dea has hit on an idea that is going to make the old cash register jingle merrily during the dull time between now and Christmas.

* * *

I'VE heard the confession of a self-admitted joy rider between Birmingham and Detroit, Birmingham being our high-hat suburb to the north, which charges 45 cents bus fare to come into town. The confession was worth hearing, for it effectively demonstrated the uneconomical use of the automobile.

The joy rider owns a car but doesn't drive in. He usually is picked up by a fellow townsman and this way he has discovered we are not getting out of the automobile all we should. He's been checking at Eight Mile Road during traffic waits, and has found that on the average the red light stops thirty-one cars carrying thirty-nine people.

That means that each uses about 22 cents' worth of gasoline when the thirty-nine could be packed into five big cars and brought to the city at a cost of 3 cents per passenger.

This joy rider, though, is not a grafter. As he gets out at Grand Boulevard he slips a thin dime into the ash tray, where it will be found later, to pay for his transportation.

* * *

ON a par with the above is the story told about the time when Detroit taxis were running on a nickel flagpole, meaning an initial starting charge of 5 cents. A thrifty member of the Detroit Athletic Club discovered he could go from the club to his office in the Book Tower over a certain route for exactly 10 cents. One time the taxi driver had tough breaks in traffic and just as the Book Tower hove in sight the meter was about to jump to 15 cents. The clubman signaled to stop, and as he stepped out the meter flopped the third five as he tendered his usual dime. Whereupon he resigned himself to his fate, hopped back into the cab and ordered the driver to continue to the Book Tower. That's about the last word in something.

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Support the Shop Equipment Section

THIS year more than ever before the shop equipment section of the national automobile shows at New York and Chicago deserves support. Manufacturers of this sort of equipment, in common with all the machine tool industry, have been through a bad time. Concerns which are progressive and want to keep their machinery up to the minute have had to conserve their resources and delay buying equipment that they normally would have gotten. Other companies not quite so progressive have used the obvious excuse of hard times to get along with obsolete equipment.

It is generally assumed that it will be some months before the purchasers of shop equipment begin to feel the effects of revival. For some months repair shops, dealerships, etc., are going to have to worry along on reduced incomes. They will not be in the market for new shop equipment until spring brings a revival of vehicle usage and demand for repairs and replacements brings money into the tills.

Nevertheless, this is the time to show those who operate our repair and maintenance divisions the newest machines and equipment to make their shops more efficient. Show them now how they can do better work at a cheaper rate and they will buy. Even though the long looked for business revival has only just started, the important factor in the situation is that there is a better feeling everywhere. We actually believe now that the mystic corner has been turned. We are expecting a revival, slow and gradual perhaps, but we do expect betterment. This has put a new slant on our national psychology. Possible buyers of investment products, which shop equipment certainly is, are in a frame of mind that will permit them to buy. The former tendency to hold onto all possible cash to see what is going to happen has altered radically in the past few weeks. With hope taking the place of fear as the fundamental characteristic of our national psychology, individuals and companies can be persuaded to buy if they are shown that they are making an investment that will pay dividends with continuing improvement.

The shop equipment manufacturers have got the psychological cards stacked in their favor, if we may use such an expression. Their best lead at the moment is a convincing display at the national automobile shows, which will attract more dealers this year than last and dealers in a much more favorable frame of mind toward buying equipment to insure future profits.

Something Better

IN a recent interview, Henry Ford made an extremely acute observation, which industrialists in general will do well to ponder. He said: "The stock market will go up when it has something to go up on—when American industry turns out something better than it now has. All our so-called progress has slipped behind the times. The automobile has not even started yet. The automobile is just where the electric light was when Mr. Edison left it. Everything is yet to be done. There is more work to be done than this country can catch up with in ten years."

Probably Mr. Ford himself would be the first to acknowledge that he had given us the historic example of the danger of allowing progress to slip behind the times. Some years ago he clung to the old model T in spite of falling sales and evidences that the public considered the vehicle "behind the times." Only his manufacturing genius enabled him to rectify the mistake with his model A.

However, we believe that the automotive industry this year has worked along the exact line of Mr. Ford's argument. It is going to give the public something better than it ever has had in the way of motor vehicles at a cheaper price. If all industries follow this lead we shall work out of our depression more rapidly than we are inclined to believe.

STEWART-WARNER'S NORMALLY ENERGIZED BRAKING SYSTEM

(Continued From Page 1)

or lever as shown on the simple layout herewith. Provision is made for correcting errors due to front spring deflection and for steering interference with front wheel braking. The front and rear actuating rods, that is, those that connect with the brake cam shaft levers, are connected to a distributing lever so-called which is operated by the brake pedal. When the pedal is depressed both front and rear brakes act simultaneously. Further depression of the pedal causes greater movement of the front shoes over the rear. As a result of the use of the distributing lever there is an exact predetermined distribution of the brake forces between the front and rear brakes due not only to drum expansion due to heat, but from lining wear also. Thus braking force distribution is obtained through travel rather than through leverage.

Among the claims made for this new braking system are strength, accuracy, simplicity of design and fewness of parts. All parts are interchangeable front and rear, except the cam shafts proper. With the co-operation of the car engineering departments, it is stated, even the backing plates can be made fully interchangeable.

Each pair of shoes is actuated by a cam mounted on a floating cam shaft, so that the same pressure applies on the shoes of all wheels. Strong pull-back springs are placed to assure their holding the cam and cam shaft securely in place and to release without undesirable snap action.

At the cam end of the shoe contact surfaces are provided. These are forged integrally on the shoe, from rolled section bar stock, making the shoe a one-piece forging. The contact surfaces are so designed that they accurately position the cam in the drum endwise and also on center, regardless of the movement of the shoe away from the shaft when expanded.

When the pull-back springs retract the shoes, the barrel shaped faces provided on the barrel cam position all parts within the drum. As soon as the cam is revolved and the shoe leaves the face of the centralizing screw, the cam is free to float in either direction. This is designed to prevent binding of the parts.

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COMING EVENTS

NOVEMBER

28-Dec. 9—**Brussels, Belgium.** Automobile Salon.
29-Dec. 5—**New York, N. Y.** Automobile Salon, Hotel Commodore.
30-Dec. 4—**New York City.** American Society of Mechanical Engineers, annual meeting.

DECEMBER

7—**Atlantic City, N. J.** Fabric Auto Equipment Association, meeting.
7-12—**Atlantic City, N. J. Motor and Equipment Association and National Standard Parts Association. Joint Trade Show.**
9-11—**Atlantic City, N. J.** American Insitute of Chemical Engineers, meeting.

JANUARY

9-16—**New York City.** National Automobile Chamber of Commerce. National Automobile Show.
9-17—**Los Angeles.** Annual Automobile Show of the Los Angeles Motor Car Dealers Association.
10-13—**Chicago.** National Wheel and Rim Association, annual convention, Edgewater Beach Hotel.
11-14—**Detroit, Mich.** American Road Biulders Association, twenty-ninth convention and show.
14—**New York City.** Society of Automotive Engineers, annual dinner Pennsylvania Hotel.
16-18—**Detroit, Mich.** National Tire Dealers Association, annual meeting.
16-23—**Newark, N. J.** Newark Automobile Dealers' Association's annual show.
16-23—**Buffalo, N. Y.** Annual automobile show of Buffalo Automotive Trade Association, Inc., 174th Regiment Armory
17-18—**Chicago** National Assoication of Finance Companies, annual meeting.
17-23—**Cincinnati.** Automobile show of Cincinnati Automobile Dealers' Association.
17-23—**Milwaukee.** Annual Automobile Show, Milwaukee Automotive Trades, Inc.
22-30—**New York.** National Motor Boat Show, Grand Central Palace.
23-30—**Detroit, Mich.** Annual show, Convention Hall.
23-30—**Baltimore.** Annual Automobile Show.
23-30—**Minneapolis.** Annual Automobile Show of Minneapolis Automobile Trade Assoication.
23-30—**Pittsburgh.** Annual automobile show of Pittsburgh Automobile Dealers' Association, Motor Square Garden.
25-29—**Detroit, Mich.** Society of Automotive Engineers, annual meeting, Bok Cadillac Hotel.
30-Feb. 6—**Cleveland.** Annual Automobile Show of the Cleveland Automobile Manufacturers and Dealers Association, Public Auditorium.
30-Feb. 6—**Chicago, Ill.** National Automobile Chamber of Commerce. National Automobile Show
30-Feb. 6—**Chicago, Ill.** Automobile Salon. Hotel Drake.

FEBRUARY

6-13—**St. Paul.** Annual Automobile Show St. Paul Automobile Dealers, Inc.
13-20—**Kansas CHy, Mo.** Annual Automobile Show, Kansas City Motor Car Dealers' Association. American Royal Building.
13-20—**Los Angeles, Cal.** Automobile Salon Hotel Biltmore.
17-21—**Peoria, Ill.** Automobile Show.
22-March 5—**San Francisco, Cal.** Automobile Salon, Palace Hotel.

BAY STATE TRUCK LEADER ASSAILS R. R. COMPETITION

(Continued from Page 1)

Lowell-to-Boston canal had objected to the proposed law to grant a charter to the Lowell-to-Boston railroad on the grounds that many widows had their mites invested in the canal, that savings banks had their funds tied up in it, and that the canal was giving adequate service anyway. The state not only granted the franchise, he said, but added a generous subsidy of the sort which the railroads now generally charge the truckers receive from the public which is supposed to contribute so generously to the support of the roads the truckers use.

He cited the case of the New Haven Railroad and the history of the lowering of the Boston-to-New York bus fare. The fare was placed originally at $5, he said, and was lowered by all operating companies to $4 after railroads, the Berkshire and the Victoria lines, had cut theirs. He said that upon his own objections made personally to Arthur Russell of the New Haven road, Russell replied that the fare would be dropped to $2.50 before it would get back to $5, and that the company hoped by so doing to drive some of the other buses off the road. The fare is now $2.50, he said.

He said the truckers would not object to competition, but that the New England Transportation Company was taking freight for less almost than gas and oil alone required to haul it. To show that the transportation company was operating at a considerable loss, he quoted from a balance sheet filed with the Department of Public Utilities of this state, according to which it had suffered a deficit of about $188,000 for the period it covered, and he said that President J. J. Pelley of the New Haven road had admitted that loss at a hearing within the last few days.

CORD RESUMES AUBURN HELM; FAULKNER RESIGNS

(Continued From Page 1)

fore, companies that are able to produce newer, better built cars that offer greater value for less cost will enjoy an ever increasing public patronage. That has always been Auburn's aim, and accounts for Auburn's remarkable sales increase this year.

"Our plans for the future are based on the possibility that the automobile industry may have a smaller total volume to share next year than this. Auburn's plans are made to meet that kind of a market. In preparation for the future, divisions of the Cord corporation have invested more money this year than ever before in engineering development work and in improved manufacturing methods. Our optimism is based upon confidence in our organization's ability to surpass its record of 1931."

WESTERN STEEL MILLS GAIN IN CAR DEMAND

Chicago, Nov. 20.—Steel producers here report that plans of motor car manufacturers for increased output are being reflected in a 50 per cent. larger demand in automobile tonnage placed with Western mills, as compared with a few weeks ago. A leading producer looks for a still further gain as a result of orders now pending.

$6 Profit in 10 Minutes

for dealers who sell

Pines Winterfronts

1931 promises more sales than ever on this motor necessity.

HERE'S the profit opportunity you've been looking for. You actually earn $6 in 10 minutes by installing Pines Automatic Winterfronts! Your investment is small . . . prices are low . . . turnover is fast. And your profits are exceptionally worth while!

Motor car owners are more anxious than ever to make every dollar count. To Pines dealers that means one thing . . . more Winterfront sales. Because Pines Winterfront is a *necessity*, not a luxury. The public realizes that cold weather endangers the life of motors not equipped with this automatic protection . . . that Pines Winterfront provides motor insurance worth many times its cost.

New low prices on Pines Winterfront, too. $15 for small size; $20 for large size.

Don't miss this chance for extra fall and winter profits. Order your Winterfront stock right now. If you do not handle Pines Winterfront and want more information, get in touch with your nearest Pines distributor. Or write us for his name.

PINES WINTERFRONT COMPANY
1151 North Cicero Ave., Chicago

NEW PINES FUEMER

A New Profit-Maker for Dealers

Here's the new device—the Pines Universal Fuemer—the only device that instantly starts cold motors! It fits all model cars and motors and can be installed in a jiffy. Used as standard equipment by three fine car manufacturers. Not merely an accessory, but a NECESSITY. Ask your Pines distributor for full details.

STANDARD WARRANTY REVISION APPROVED BY MOTOR CHAMBER

(Continued from Page 1)

terial or workmanship during the life of the contract by any authorized dealer of the car manufacturer without charge to the owner.

2. From one to three periodic inspections and adjustments of the new car, depending upon its cost.

It is understood that manufacturers would not be under obligation to accept all or any portions of the plan, but that the Standard Warranty and Owner's Service Policy were intended to define responsibilities which manufacturers could be expected to assume.

Details of the plan were agreed upon at a meeting of the sales executives of twenty-one manufacturers, under the chairmanship of R. H. Grant, General Motors Corporation, in Detroit on October 24, and their recommendations received the approval of the chamber directorate, which voted to present for adoption by the entire industry.

WAUKESHA MOTORS TO DECLARE REGULAR DIVIDEND, SAYS HORNING

Chicago, Nov. 20.—"The regular quarterly dividend of 75 cents a share will be declared at our December 1 meeting," said H. L. Horning, president, Waukesha Motors Company.

Net profit of Waukesha Motors Company for the fiscal year ended July 31, 1931, was equivalent to $3.76 a share against $4.50 in the like 1930 period. Dividend requirements of $3 annually, for the fiscal year, which have remained unchanged throughout the depression, were therefore covered by a comfortable margin.

HAYES BODY SHOWS LOSS AFTER CHARGES FOR THIRD QUARTER

Detroit, Nov. 20.—Hayes Body Corporation reports for quarter ended September 30, 1931, net loss of $106,260 after depreciation, interest, etc., comparing with net loss of $70,101 in preceding quarter and net loss of $100,645 in third quarter of previous year.

Net loss for nine months ended September 30, 1931, was $269,696 after above charges against net loss of $486,414 in first nine months of 1930.

YELLOW CAB VOTES DIVIDEND REDUCTION

New York, Nov. 20.—Directors of Chicago Yellow Cab Company yesterday declared a quarterly dividend of 50 cents, placing stock on a $2 annual basis, against $3 previously. Dividend is payable March 1 to stock of record February 19.

HOUDAILLE DECLARES QUARTERLY 62½ CENTS

Chicago, Nov. 20.—The Houdaille-Hershey Corporation has declared the regular quarterly dividend of 62½ cents on the Class A stock, payable January 2 to stockholders of record December 18.

FORGED STOCK

New York, Nov. 20.—A warning concerning fraudulent odd-lot certificates for stock of the General Motors Corporation was sent out yesterday by Ashbel Green, secretary of the New York Stock Exchange. He said three counterfeit certificates representing 220 shares had turned up in Seattle, Wash. Forged certificates for General Motors stock have been found from time to time in the last year.

AMERICAN LA FRANCE

New York, Nov. 20.—American La France and Foamite Corporation reports for the three months ended September 30 net profit of $14,235, after interest, depreciation and taxes, equal to 24 cents a share on 58,000 shares of 7 per cent. preferred stock, against net loss of $107,623 in preceding quarter and net loss of $4,881 in third quarter last year. For the nine months ended September 30 net loss amounted to $225,950, compared with net loss of $116,486 in first nine months of 1930.

B. F. GOODRICH COMPANY TRANSFERS HOOVER

Akron, O., Nov. 20.—J. R. Hoover, for two years manager of the general chemical laboratories of the B. F. Goodrich Company, has been appointed to the chemical sales division of the company. L. N. Freeman becomes the new manager of the laboratories.

PEORIA, ILL., WILL HOLD ITS SHOW FEB. 17 to 21

Peoria, Ill., Nov. 20.—The Peoria automobile show date has been set for February 17 to 21, inclusive, at the Caterpillar display room.

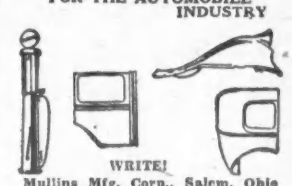
PLYMOUTH NOW ON DISPLAY WILL APPEAR AT SHOW

(Continued From Page 1)

power Plymouth which are now on display in the showrooms of every Chrysler, Dodge and De Soto dealer in the United States, are the same Plymouths that will be displayed at the forthcoming national shows in New York and Chicago."

This sets at rest rumors of possible changes for the shows and is evidence that the factory feels that public acceptance of new line, which appeared in July, has justified the decision since the debut. Plymouth has been in third plae in registrations throughout the country, and at many points it ranked first. Plymouth percentage of total cars sold in September was 13.51 per cent., compared with 3.43 per cent. the same month in 1930.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

MULLINS STAMPINGS
FOR THE AUTOMOBILE INDUSTRY

WRITE!
Mullins Mfg. Corp., Salem, Ohio
332 So. Michigan Ave., Chicago.
General Motors Building, Detroit.

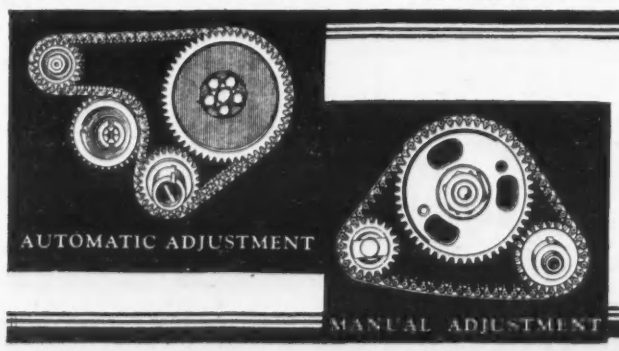
CUMULATIVE NEW PASSENGER CAR

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Readers desiring Some of this data has been published previously, but it is

In this table 26 states and the District of Columbia. **Returns for today: Connecticut, Georgia, Indiana,**

States	Auburn	Austin	Buick	Cadillac	Chevrolet	Chrysler	Cord	De Soto	De Vaux	Dodge	Durant	Essex	Ford	Franklin	Graham	Hudson	Hupmobile	La Salle
Arkansas	1	2	12	3	277	18	1	7		24	2	4	269	1	7		6	2
Conn.	33	1	145	31	551	87	2	55	14	46	3	37	327	6	49	25	22	18
Delaware		1	19	4	96	10		1	2		1	2	83	1	1	1		2
Florida	24	1	43	4	461	37		15	3	18	2	25	403	2	29	12	8	8
Georgia	16	2	67	4	509	26	1	12	1	46		20	368	2	19	5	15	4
Idaho	3		8		66	4		3	2	6	3	2	58		5	2	1	
Illinois	77	4	167	77	1402	147	10	96	11	139	9	87	1305	24	103	36	47	60
Indiana	46	1	70	14	646	51	7	94	3	53	5	53	489	6	32	19	21	5
Maryland	17	1	52	5	604	36	1	11		22	7	38	360	10	23	8	10	4
Minn.	8	4	68	4	713	39	2	21	7	37	3	16	549	2	41	12	29	6
Missouri	38	2	72	5	874	47	1	38	1	73	11	68	713	4	41	19	22	12
Montana	3	2	27		105	12		2	1	15	2	6	102	2	2	5	1	1
Nebraska	7		31	3	429	15		3	3	28	1	15	413	1	11	7	5	
N. Hamp.	4		28	1	175	6		8	1	8	1	15	156	7	8	3	4	2
N. Ca'lina	19	1	54	6	880	58		14	10	56		31	616	1	2	10	3	4
N. Dakota	3		9		77	2		1	1	8	1	2	96		4	1	1	
Oregon	3		42	7	189	26	1	14	7	16	9	5	178	3	46			1
Penna.	99	12	438	71	2261	317	6	162	30	211	31	152	1667	39	183	65	82	51
R. Island	14	3	57	7	180	27		41	5	16	1	21	162	6	9	9	7	9
S. Carolina	6		25		365	21		7	2	6		3	217	2	2	4	5	1
S. Dakota	3	3	7	2	91	11		3	4	10	1	1	89	1	1		10	
Utah	2	1	16	1	74	3	1	5	4	6		6	58	3	5	7	1	1
Vermont	2		29	1	74	7		7		8	3	19	117		5	5	4	1
Virginia	12	4	73	5	992	53	1	56	7	56	2	53	777		28	13	23	6
W. Va.	11	5	25	6	351	43		26	3	38	3	15	258	1	18	3	8	2
Wis.	16	2	54	6	431	39	2	28	3	49	2	20	266	1	32	10	13	3
D. of Col.	19	2	55	11	454	31	1	20		32	1	28	461	2	30	4	13	6
Totals	486	54	1693	278	13327	1173	37	750	125	1027	104	744	10557	127	736	285	361	209
Ark., '30	3	4	37	5	352	37	1	8		51	8	11	577		5	5		4
Conn., '30	16	9	231	53	424	97	4	86		101	13	95	799	24	39	41	30	28
Dela., '30	2	2	25	5	73	10		3		2	7	9	145	1		4	3	5
Fla., 1930	11	29	125	15	614	55	3	12		21	1	43	921	9	37	15	13	6
Ga., 1930	1	3	96	10	528	32		24		33	4	10	1014	5	12	15	18	6
Idaho, '30		4	21		159	16		12		15	15	9	214		8	8	1	
Ill., '30	47	18	442	100	1521	189	25	125		200	24	178	2677	60	110	52	52	75
Ind., 1930	33	12	165	17	661	65	2	52		71	15	52	1072	4	22	29	18	9
Md., '30	8	1	147	15	565	67		14		46	15	43	768	8	19	12	14	12
Minn., '30	2	5	170	13	1030	108	2	22		85	20	30	1186	2	37	20	37	7
Mo., '30	8	9	190	26	914	51		33		97	17	77	1375	10	37	21	27	17
Mont., '30	1	2	30		224	21		8		13	5	12	282	2	4	7	6	1
Neb., 1930	6	8	119	5	779	53		8		70	7	16	1132	5	18	9	14	1
N. H., '30	5	2	59	4	120	23		7		8	4	13	252	2	3	8	5	3
N. C., '30	5	9	126	12	918	65	1	14		79	1	53	1357		8	15	5	8
N. D., '30		4	19		214	11		3		10	8	6	251		5	4		
Ore., 1930	1	3	97	7	298	28		17		21	36	46	416	6	27	13	4	4
Pa., 1930	31	47	909	109	2072	422	6	171		329	95	220	3678	43	216	115	129	93
R. I.,'30	2	7	61	17	137	35		25		31	14	21	315	5	12	10	10	11
S. C.,'30		10	65	1	597	32	1	14		30		16	691		2	10	7	3
S. D.,'30		2	48	2	307	24		3		20	16	11	342	1	6	5	1	
Utah, '30	2	1	38	1	121	12		6		11	25	15	164	4	6	7	3	3
Vt., '30	2		32	2	82	28	1	11		13	4	16	157	1	4	10	4	4
Va., '30	6	6	110	6	696	55		33		70	14	46	1110	4	29	25	9	4
W. Va., '30	5	2	66	7	402	43	2	16		59	6	33	559	3	30	19	8	4
Wis., 1930	11	11	233	17	880	64	1	32		68	24	80	1073	4	36	39	18	16
D. C., 1930	6	3	86	16	194	23	1	18		32	1	13	621	5	20	9	14	6
Totals, '30	214	213	3747	465	14882	1666	50	777	*	1586	399	1174	23148	208	752	527	450	330

*Not in production at that time.



FOR EVERY TY
Whether the most convenient and effici
for manual adjustment or automatic adjus
the type that suits the requirements best. C
INDIANAPOLIS LINK-BELT
(Reg U S

WILLYS-OVERLAND REPORTS INCREASED DEALER INTEREST

(Continued from Page 1)

viduals and companies themselves in their respective communities.

"We recognize that a company is no stronger than its merchandising organization and it is highly gratifying to Willys-Overland to note the strength we have added to our distributing channels, which should be reflected in greater sales volume and profit opportunities for our merchants as well as our factory."

COLUMBIA OPENS CLASSES TO UNEMPLOYED ENGINEERS

New York, Nov. 20 (UP).—Classes in the Engineering School of Columbia University have been opened to unemployed professional engineers, Dean Joseph W. Barker announces. President Nicholas Murray Butler sanctioned the measure, Dean Barker explains, after the proposal had been advanced by the professional engineers' committee on unemployment and the Gibson committee.

Applicants must secure a certificate from the engineers' committee, of which H. de B. Parsons is chairman, showing that they are accredited members of the profession, and that they are idle through no fault of their own. They will present these credentials to Dean Barker, who will assist them in arranging their class attendance. The number of the engineers admitted will be limited only by the size of the lecture halls.

REGISTRATION STATISTICS, OCTOBER, 1931

Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. given here complete for the convenience of our subscribers

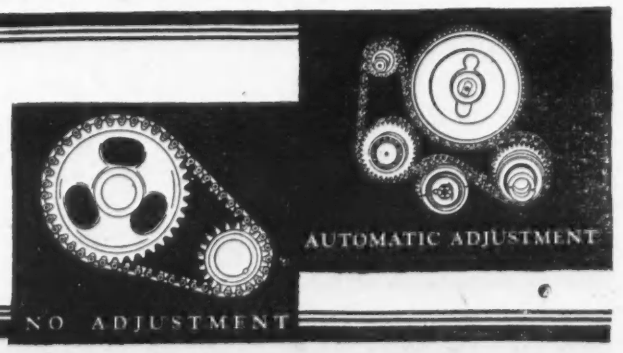
Nebraska, Oregon, Pennsylvania and Rhode Island

States	Lincoln	Marmon	Nash	Oakland	Oldsmobile	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Stutz	Whippet	Willys	Willys-Knight	Miscellaneous	Totals
Arkansas			6		5				80	22	3	7			2	2		763
Conn.	5	5	50	19	40	47		17	234	104	21	80			26	5		2105
Delaware	3	2	2	4	5	9			21	18		6			3			297
Florida		1	15	4	10	7		1	201	48	3	17			11	3		1,416
Georgia	1	4	24	3	24	9		1	103	37	7	37			13	2		1382
Idaho			5	2	1				25	4	1	4			3	2		210
Illinois	17	8	155	32	141	107	1	11	581	191	30	179	9		126	14	9	5,412
Indiana	3	25	34	11	57	19		3	331	82	6	83		3	66	8	1	2,347
Maryland		1	38	15	13	22		4	175	74	8	36	1		29	4		1,629
Minn.	2	1	37	10	36	30		6	245	60	16	62	1		50	8	1	2,126
Missouri	5	52	48	14	53	22	1	14	280	75	6	55	1	2	146	9		2,826
Montana		2	3	5	7	1			42	27	2	8			8	2		396
Nebraska		2	10	4	20	4		1	94	34	3	34			43	4	12	1,237
N. Hamp.	2	2	16	4	15	6		1	70	25	2	28			15	2		615
N. Ca'lina	2	3	6	2	13	5		2	194	79	2	17			19	2		2,111
N. Dakota		1	7	1	5				21	12		8		1	15	3		280
Oregon	1		15	1	4	2		4	70	25	4	18			10	1		702
Penna.	17	52	158	64	152	174	1	17	1246	305	29	232	1	1	196	46	5	8,573
R. Island	1		10	2	9	10	1	4	102	34	3	21			23	4		798
S. Carolina			4	2	7	4			85	28	5	8			4	1		814
S. Dakota			2		14	1			31	9	1	7		1	11			314
Utah		1	4	1	4	3			9	5	2	8			6			237
Vermont			8	5	7	8		1	42	15	3	6			18			395
Virginia		6	30	17	23	13		1	232	110	1	45		1	22	3		2,665
W. Va.		2	15	5	17	14		1	165	45	19	21			38	11		1,169
Wis.	1		47	13	34	19		2	178	68	9	65		1	38	5	10	1,467
D. of Col.	2	3	33	17	34	36		6	157	62	1	36			13	3	2	1,575
Totals	62	173	782	257	753	572	4	97	5,014	1598	187	1128	13	10	954	144	40	43,861
Ark., '30		1	22	5	14	2		2	45	17	2	12		5	4	2		1,241
Conn., '30	8	27	84	34	38	79	1	18	63	104	23	96	1	6	21	20	3	2,716
Dela., '30	2	1	6	4	4	14		1	11	7	1	3		1	3			354
Fla., 1930	3	2	25	16	14	15		1	74	51	10	16		14	9	2		2,182
Ga., 1930	7	2	17	6	31	15		2	41	31	5	40		4	13	3		2,028
Idaho, '30	2		8	1	3				22	13	8	15		1	4	2		561
Ill., '30	45	50	272	69	143	176	5	18	217	226	29	286	6	37	114	36	24	7,648
Ind., 1930	4	31	53	21	59	29	1	6	111	85	8	86	2	16	50	11	4	2,876
Md., '30	4	4	54	15	43	37	4	9	68	51	11	59		4	24	8	3	2,152
Minn., '30	5	16	95	23	44	60	1	9	198	107	31	86	1	51	65	18	6	3,592
Mo., '30	3	21	82	29	59	55	1	19	143	94	15	53	2	29	56	10	9	3,589
Mont., '30	2	5	24	7	3	4			24	11	5	5		16	11	4		739
Neb., 1930	3	3	31	5	34	7		1	150	53	5	56		28	64	12	1	2,703
N. H., '30	1	12	35	3	19	2	1	3	28	16	17	16		2	14	2		689
N. C., '30	5	5	35	8	19	11		2	69	58	3	17		9	18	2		2,937
N. D., '30		3	15	5	11	2			26	19	1	13		12	21	1		664
Ore., 1930	3	3	21	6	18	10		2	38	41	14	33		6	7	3		1,229
Pa., 1930	39	103	360	114	213	244	29	65	586	306	78	329	1	83	217	67	18	11,537
R. I.,'30	4	3	26	5	5	16	2	9	27	29	30	28		4	8	12		921
S. C.,'30	1	5	9	4	9	12			43	28	3	16		4		1		1,614
S. D., '30	1	3	12	5	36	1			54	12	4	23		12	9	2		962
Utah, '30	1	1	24	4	10	6		1	3	7	2	21		1	2	3		505
Vt., '30		1	23	6	6	9	1	2	28	17	3	2		4	10	2		485
Va., '30	3	11	26	24	20	24	1	4	61	98	12	32		9	27	4		2,579
W. Va., '30	1	19	36	13	25	11	1	4	89	48	11	34		18	46	9		1,629
Wis., 1930	2	14	189	39	72	33	1	10	162	135	23	98		19	69	10	24	3,507
D. C., 1930	7	7	36	16	35	31	17	5	28	36	4	30	1		9	7	4	1,341
Totals, '30	156	353	1620	487	987	905	66	193	2,409	1700	358	1505	14	395	895	253	96	62,980

PE OF MOTOR

t layout calls for 2, 3, or more wheels, or
ient of chain tension, Link-Belt can furnish
r experienced engineers are at your service.

COMPANY DETROIT



Trademark)

Manufacturers to Appoint Official Junk Yards in Plan To Expand Salvage Work

(Continued from Page 1)

ers' loss in the difference between the trade-in price and the salvage value. Beginning about two and one-half years ago, certain manufacturers, members of the National Automobile Chamber of Commerce, have been adopting the so-called highway safety plan, which is essentially the same as the Chevrolet plan, adopted by that company five years earlier."

Under this plan there is set up for each dealer a credit in proportion to his car purchases, upon which he may draw when he has junk cars to dispose of, and it has been required that various parts of the car be mutilated beyond practicable repair in the presence of a factory representative before the dealer could receive the junking bounty.

That this did contribute to highway safety is evident in the fact that last year 300,000 cars were destroyed under the highway safety plan, which was somewhat more than 10 per cent. of all cars that passed out of registration in that time. To a very considerable extent it also relieved the dealers of the loss taken in scrapping cars. However, as the highway safety plan does not prescribe what the dealers shall do with the cracked-up cars, it falls short of carrying through to the point of salvaging the value remaining in worn out cars.

"About two years ago," Mr. Cobleigh continued, "the dealers in Cleveland, O., effected an arrangement with a large local scrap merchant for the establishment of a yard operated under the name of the Cleveland Guarantee Auto Scrapping Company for the complete scrapping of all cars turned over to it by the dealers, which was bonded to sell no cars nor parts. Nothing was salvaged but the metals and materials.

"To save the delay and the expense to factory and dealer of having the car wrecked in the presence of a factory representative and the expense of towing cars that would otherwise run to the yard under their own power, the Cleveland company asked the manufacturers in the highway safety plan to accept its certificate of demolition in lieu of having the cars cracked up, and this request was granted.

"The experience of this yard has confirmed what all of the co-operative dealer salvage yards had found—that car scrapping is unprofitable without the sale of used parts. Last year the Cleveland company lost almost exactly what it had paid the dealers for the old cars. In other words, had they received the car for nothing they would only have broken even.

"This has been final proof that collecting, classifying and preparing the scrap material in an old automobile, so that it is acceptable by the mills, costs all it will bring in a local market. Cities remote from purchasers of scrap would have the added expense of freight.

"Now the Cleveland company has asked permission to sell second-hand parts just as the Co-operative Dealer Salvage Yards found they had to do.

"A study under the direction of the N. A. C. C. sales managers' committee, headed by R. H. Grant of General Motors, developed that the sale of used parts was not the evil it was supposed to be. Although it does prolong the life of cars still in owners' hands, it at least makes them safer, and it is sound economically to repair old cars with used parts.

"In the past year 84 per cent. of the cars scrapped at Cleveland were five years old or older, hence the used parts that would have been available for resale would have been practically all for cars at least that old. The factories have learned that their sales of new parts for such cars are extremely small and are handled at a loss. Since owners can and do obtain satisfactory used parts much cheaper from the wreckers that have grown up everywhere, it was seen to be fruitless to handicap official yards by insisting on the destruction of parts.

"Thereupon the sales managers' committee recommended to the board of directors that the chamber delegate a man to make a survey, and as rapidly as possible appoint yards at keypoints throughout the

(Continued on Page 6)

CAR MAKERS WILL NAME JUNK YARDS FOR SALVAGE WORK

(Continued from Page 5)

country that will dismantle cars, selling no complete cars nor chassis, and give the dealers certificates of demolition upon which the manufacturers may pay the bounties under the highway safety plan. This will gradually stop the expense and waste of destroying parts which have a resale value."

The directors approved this recommendation, and Mr. Cobleigh was assigned to this work. He has just returned from a trip of 3,500 miles, in which he visited the cities of Pittsburgh, Cleveland, Detroit, Chicago, Milwaukee, La Crosse, Cedar Rapids, Omaha, Kansas City and St. Louis, conferring with factory and dealer association officials, scrap merchants, automobile wreckers and others. Everywhere that the enlarged salvage program of the manufacturers was discussed, it was enthusiastically received and cooperation promised. He has found yards eager to be appointed, and dealers eager to have them appointed on the basis of their being salvage yards in the most economical sense, realizing the greatest possible value out of the old cars. It will mean that the yards can make more profit and pay more to the dealers for the scrapped cars.

Among other impressions that Mr. Cobleigh received from this survey was that the manufacturers' decision to allow the sale of used parts is not only necessary but desirable. Instead of being taken with an attitude of "what can't be cured must be endured," he finds that it is positively an advantage to all concerned because it is economically sound. From the owner's standpoint it is extravagant to put a new part in a car five years old which has only two years of useful life left, particularly a non-wearing part.

The automobile as an assembly has an average life of seven years, but many of the elements in it have an indeterminate life, and to throw such parts away is wasteful. For the manufacturers to make enough of such parts to carry them on inventory for five years, only finally to scrap a great part of them, is likewise a waste. The dealer would not have them in stock. The owner would have to wait probably two weeks, on an average, to get them from the factory. The owner saves not only time but money when he can go to a responsible yard and buy a guaranteed second-hand part.

Now that the sale of used parts has been authorized it will be immediately possible to appoint as official yards not only those set up on the Cleveland plan, but also the seven co-operative salvage yards that dealers are operating. There are about a dozen cities all ready for appointment, Mr. Cobleigh has found, and at least twice that number of cities that can very shortly be organized.

Where there are dealer associations to select and nominate the yards that they prefer for appointment, results can be obtained quickly. In other keypoints it will be necessary to organize groups of dealers to co-operate with the yards and exercise such supervision for the industry as may be needed in each locality. Because of the importance of close co-operation between the dealers and the yards it will be the policy, Mr. Cobleigh believes, to appoint only such yards as the dealers nominate. The dealer associations are to be asked to canvass their local situations and make their recommendations as promptly as possible.

The essential requirements of the yards will be that they shall not sell cars nor chassis, and, if the dealers are required to give the cars to the appointed yards to get the highway safety plan bounty, the yards must agree to accept all those cars. The advantages to the yards from appointment will be assured profit and greater volume, since they will get all of the cars salvaged under the highway safety plan, and to a great extent the unbountied cars that the dealers may scrap, for, selling used parts, they will be able to bid as high for these cars as independent auto wreckers, who, at present having the advantage, are able to get most of those cars.

The appointed yards will also have the advantage of the co-operation of the chamber's car salvaging department, which, serving as a clearing house for exchange information derived from all quarters, will enable them to keep up with the progress that is bound to follow as improvements are made in the demolition process, in marketing scrap and parts and in general developing the most efficient conduct of business.

The advantages to the dealers have already been touched upon, including relief from the delay in waiting upon the convenience of the factory to have a man witness the car's destruction, the storage expense attendant thereon and the labor expense of mutilating the car, as well as getting a higher price from the yard for the cars when their parts are not destroyed, and the yards have the privilege of selling parts.

From the public standpoint the new program has added to the one advantage of highway safety, utilization of waste, conservation of natural resources (every ton of scrap iron used saves five tons of raw materials—ore, coke and limestone—involved in making a ton of pig iron) and preservation of landscape beauty. The present accumulating piles of discarded automobiles disfiguring the roadsides has become a common subject of complaint.

The new program of the industry well deserves the dignity of being styled a salvage plan, since it provides for the disposal of old cars not only offensively but economically, as all cars coming under the highway safety plan will have none of the value remaining in them wasted when appointed salvage yards are accessible to all dealers.

Before the plan can be very effective there will need to be at least 100 yards and eventually, to have a yard within fifty miles of every dealer, not less than 300 yards.

No one can vision the future of old car salvage, but there are many interesting possibilities within reason when a sufficient number of yards are established. For example, the engineering side of studying out the most economical demolition process for yards of various sizes, marketing studies, co-operation with the steel mills in working out the best ways for using automobile scrap with the least expense for segregation of specific alloys, co-operation with the railroads in interchanging surpluses and cutting down transportation costs in getting the scrap to consumers, etc. Worthy of acceptance is the prediction of one automobile trade association manager interviewed that car salvage will become one of the greatest activities of the industry.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127-136	Lyc	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	$1130	75	Own	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Ttl	No
Buick 32-50	3170	114	Own	Bish-Bab	O	6	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 32-60	3795	118	Own	Bish-Bab	O	8	3⅛x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 32-80	4255	126	Own	Bish-Bab	O	8	3 1/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 32-90	4340	134	Own	Bish-Bab	O	8	3 1/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	Yes	LV	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140-143	Own	Own	O	12	3⅛x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	No	O	6	3 1/16x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175⅞	Own	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	80@3400	*Alum	4	—	AC	Sch	Yes
Chrysler 8 De L.	——	187 3/16	Own	Yes	L	8	3¼x4¼	282.1	5.20	33.80	100@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	Yes	L	8	3½x5	384.8	5.00	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169 3/16	Own	Yes	H	6	3¼x4⅛	205.3	5.35	25.35	72@3400	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*176⅞	Own	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	Dole	L	6	3⅜x4	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Ttl	AC
Dodge Six	2820	*176 3/16	Own	Yes	L	6	3¼x4¼	211.5	5.31	25.35	74@3400	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	*180 3/16	Own	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 612	2820	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Ttl	AC
Essex Super Six	2750	**113	Own	——	†L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	——	L	4	3⅞x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Pros. 6	3100	113	Own	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4,00	134	Own	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3115	119-126	Own	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	——	L	6	3 1/16x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125-137	Own	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	Yes	LV	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	Ful	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	Pines	L	8	2 13/16x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	75	130-136	Own	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	536?	145	Own	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	Flo	AC	Str	AC
Nash 960	2800	114¼	Own	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124-133	Own	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	Yes	H	8	3 7/16x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	——	L	6	3 1/16x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	Yes	L	8	3 1/16x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	Yes	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 54	——	137-142	Own	Pines	L	8	3½x4¾	366	5.00	39.2	125@3800	Alum	9	Pur	Ste	Str	AC
Pierce-Arrow 52	——	142-147	Own	Pines	L	12	3⅝x4	429	5.00	54.6	150@3200	Alum	9	Pur	Ste	Str	AC
Pierce-Arrow 53	——	137-142	Own	Pines	L	12	3¼x4	398	5.00	50.7	140@3200	Alum	9	Pur	Ste	Str	AC
Plymouth	2710	109	Own	——	L	4	3⅝x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	Yes	L	6	3 1/16x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	Yes	L	6	3⅜x5	268.3	5.30	27.34	85@3200	Alum	7	Han	V S	Sch	Un
Reo 8-25	4050	125	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	V S	Sch	Un
Studebaker Six	2920	114	Own	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Flo	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	Dole	L	8	3 1/16x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	Dole	L	8	3 1/16x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres 80	4250	130	Own	Dole	L	8	3½x4⅝	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	*4360	136	Own	Dole	L	8	3½x4⅝	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	——	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	——	O	8	3⅞x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	——	O	8	3⅞x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own	Bish-Bab	O	8	3⅞x4½	322	5.10	36.4	161@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110-113	Own	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	Flo	AC	Ttl	Ttl
Willys 8-80 D	3131	121	Own	Var	L	8	3¼x4	245.4	5.26	31.25	80@3200	CI	5	Flo	AC	Ttl	Ttl
Willys-Knt. 66-D	3400	121	Own	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Flo	Ttl	Ttl	Ttl
Willys-Knight 95	3122	113	Own	Pines	K	6	2 13/16x4⅜	177.9	5.55	20.7	60@3400	*Alum	7	*	AC	Ttl	AC

JUSTUS VON LENGERKE BUYS BUICK CONCERN

Passaic, N. J., Nov. 20.—Justus von Lengerke, Jr., who has been in the automobile business since 1919, has purchased the Passaic County Buick Company at 361 Market St. from A. R. Southworth of the Hudson County Buick Company.

Mr. Von Lengerke was general manager of the Newark Buick Corporation.

He has announced that William Kinter will continue with the company as service manager and the force will in general be the same.

Several hundred persons daily visited the showrooms of the company since Saturday when the new Buick went on display.

CADILLAC NAMES KING FOR COLUMBUS POST

Columbus, O., Nov. 20.—Spencer W. King has been appointed service manager of the Columbus direct factory branch of the Cadillac Motor Car Compnay.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmission Make	Transmission Speeds	Transmission Type	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Springs Rear	Spring Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	*Del-R	Long	D	3	LGS-F-SM	U	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	*Aut-L	Rock	WG	3	——	S	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 32-50	Tex	Del-R	Del-R	Own	M	3	SM-F	O	Own ½	4.60	Bendix	Sag	S 54½	Tryon	Al-Z	18x .50
Buick 32-60	Tex	Del-R	Del-R	Own	O	3	SM-F	O	Own ¾	4.54	M	Sag	S 55¼	Own	Alem	18x6.00
Buick 32-80	Tex	Del-R	Del-R	Own	C	3	SM-F	O	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	18x7.00
Buick 32-90	Tex	Del-R	Del-R	Own	C	3	SM-F	O	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	18x7.00
Cadillac V-8	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	——	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	O	3	——	O	Own	4.10	M	Sag	S 54	——	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Borg	O	3	BW-F	U	Own ½	4.60	H	War	S 53⅛	Tryon	Al-Z	19x5.25
Chrysler 8 De L.	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	3.82	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	D	3	——	*	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.33	H	Own	S 53⅜	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	N	3	NP-F	S	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 612	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W	3	——	S	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	5.40	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	*Own	Own	O	3	——	S	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	——	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	——	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	WG	3	——	S	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Pros. 6	Link	Del-R	*Del-R	Long	—	3	BW-F	—	——	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	*Del-R	Long	—	3	BW-F	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	4.64	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	*Aut-L	Borg	WG	3	BW-F	M	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	WG	3	BW-F	U	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	——	Aut-L	*Aut-L	Long	O	3	BW-F	S	Tim F	4.53	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon 70	Diam	Del-R	*Del-R	Rock	WG	3	BW-F	S	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	D	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	M	3	BW-F	S	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.46	M	Gem	S 55	——	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.50	M	Gem	S 57⅛	——	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M	3	SM	M	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M	3	SM	U	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	6.50x19
Packard 903-904	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	WG	3		S	Sal ½	4.70	Bendix	Ross	S 56⅜	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 54	Chain	Del-R	Del-R	Long	W	3	SM-F	—	Own	4.42	Bendix	Ross	S 62	Faf	——	31x6.50
Pierce-Arrow 52	Chain	Del-R	Del-R	Long	—	—	——	—	Own	4.42	Bendix	Ross	——	Faf	——	32x7.00
Pierce-Arrow 53	Chain	Del-R	Del-R	Long	—	—	——	—	Own	4.42	Bendix	Ross	——	Faf	——	32x7.00
Plymouth	Var	Del-R	Del-R	Own	O	3	BW-F	O	Own ½	4.33	H	War	S 53¾	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	O	3	——	M	Own ½	4.55	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Reo 8-25	Link	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	——	Del-R	Del-R	Borg	D	4	——	U	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	——	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	——	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	——	Del-R	Del-R	Long	D	4	——	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	O	3	BW-F	S	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00
Willys-Knight 95	Chain	Aut-L	Aut-L	Borg	O	3	BW-F	S	Own ½	4.89	Bendix	Gem	S 51	Tryon	Alem	19x5.00

KEY TO ABBREVIATIONS

Weight—§Austin standard 2 passenger coupe **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Studebaker, 7 pass sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con. Continental; Lyc. Lycoming; Hall, De Vaux-Hall Motors Corp.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; S, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Pur, Purmator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner; Flo, Floato.

*Using both Floato & Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; N E, North East. *Nash.—Indicates twin ignition. *Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission Make—D, Detroit Gear; WG, Warner Gear Company; M, Muncie Gear Company; O, Own; N, New Process Gear Corp.; W, Warner Corp. *Franklin Transcontinent models are equipped with both Warner and Detroit 3-or 4 speed gear sets, according to body type.

Transmission Type—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW, Borg-Warner; NP—New Process Gear Corp.

Universals—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own; M, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim, Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in. W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23. †The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Irvcn, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

DRIVER LICENSE LAW BEING DRAFTED FOR VA.

Richmond, Va., Nov. 20 (UTPS).—The state motor vehicle code is being completely rewritten to include provisions for licensing all drivers in Virginia, together with an accident responsibility clause and provisions for licensing gasoline distributors.

Members of the governor's commission on motor vehicle statutes for submission on motor vehicle legislation have redrafted the entire statute for submission to the governor as a basis for his recommendations to the Assembly of 1932.

The eliminating rules recently were declared unconstitutional in state courts and in the Supreme Court of the United States, notably those provisions granting special exemptions to for-hire trucks handling only agricultural products.

NOTICE

Please see the fifth column to the left of this advertisement giving steering gear information. Notice the outstanding Ross predominance. The actual figures are:

ROSS

36

FIRST Competitor

14

SECOND Competitor

12

THIRD Competitor

4

Build Their Own

9

ROSS CAM AND LEVER steering gears predominate not only in passenger car field, but in truck and bus fields as well.

ROSS GEAR & TOOL CO.
Lafayette, Indiana

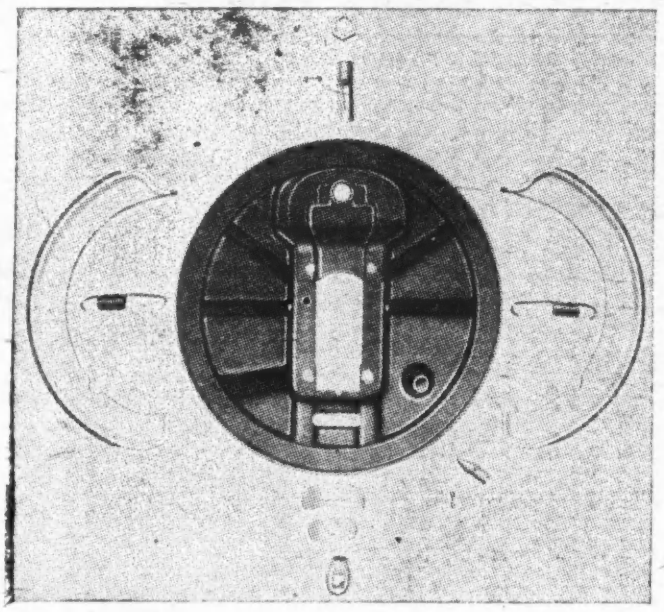
ROSS
Cam & Lever
Steering

There is only one CAM & LEVER Steering Gear

Stewart-Warner's Normally Energized Brake System

(Continued from Page 3)

The cams are mounted on formed ends of the camshafts. A metallic boot covers the camshaft opening to close it against foreign matter. Geometry error and axle roll of the system are taken care of in the design which permits locating its linkage centers correctly on various chassis. The levers are forged integrally on the ends of the camshafts and are so designed as to allow a minimum of forging operations.



THIS LAYOUT is designed to show the small number of working parts, seventeen including lining. There are fourteen parts in rear

Attention is called to the fact that the front wheels may be turned without the brakes affecting the steering, for the reason that the front cam centers are on the same centers as the king pin and steering knuckle. When the front wheels are turned, the brake shoes, with their contact surfaces, revolve about the cam and the braking effect will be released in proportion to the angle turned. This is because the applying force is resolved into two components, only one of which acts normally to the cam engagement surface of the shoes.

Thus in turning a corner, it is stated, the front wheel brakes are automatically released in proportion to the need. Any extra production errors would have no effect because the cams and shafts are both self-aligning and self-centering. Strain on chassis parts is obviated by balancing the centers around which the braking forces act and with cam shafts self-aligning, chatter and vibration are eliminated. Rigidity, self-alignment and uniform action of parts are all designed to contribute to positive control.

Bearings in the system are small ball-shaped hardened ends on which the cam shafts pivot. These are packed in grease. Incidentally, it is well to consider that these small bearings are in a direct line with the pull on the rods, eliminating any bending strains on the shafts. As the shafts are mounted on these ball-shaped bearings, they cannot be misaligned in their assembly or in operation.

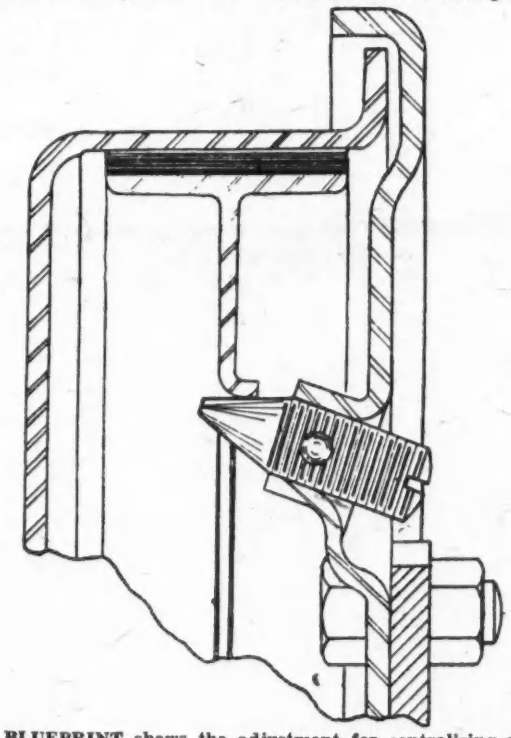
The ball ends are located on the center, around which the cam revolves, the cam shafts being cranked to provide ample clearance around the axle and spring mountings where necessary on some installations. These cam shafts can be made very light on account of the high leverage possible with this type of cam design which increases the efficiency of linkage system.

Geometry errors are corrected by special relay when found desirable. In the illustration herewith there is shown an extension bracket on one of the front spring shackles. This has a relay mounted at its upper end, at which point there is a ball and socket joint. The relay will thus line up with the pull on the front brake rod for the reason that as the springs deflect, the ball and socket end will swing back and forth, the relay being so dimensioned that the point of attachment of the power unit pull rod will remain neutral during the spring action.

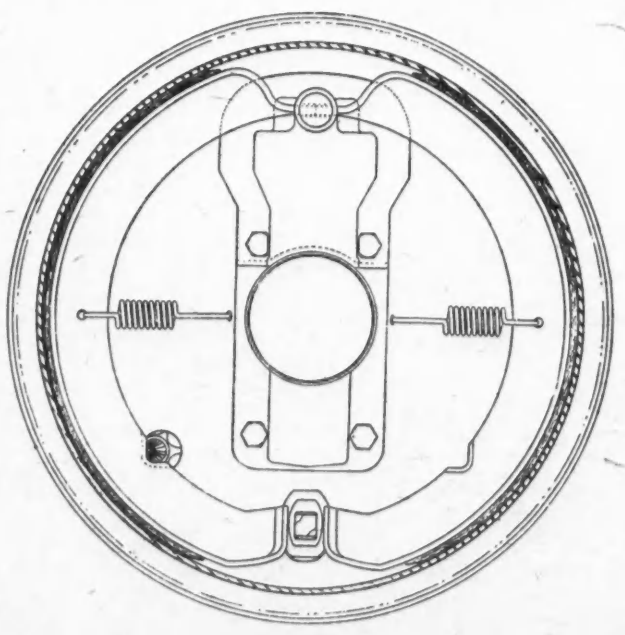
The parking brake is arranged to pull directly on the rear brakes, and it also pulls on the front brakes simultaneously through the brake-distributing lever. A lost-motion device, consisting of two buttress keys on the power unit yoke shaft loosely fitting the distributor lever, permits the parking brake to be applied independently of the foot brake. Even if the front brake lining were completely gone, the manufacturers point out, there will always be braking surface left on the rear brakes in case of emergency. Therefore, if any part of the system should fail, there still is means at hand of applying two brakes, either pedal or lever.

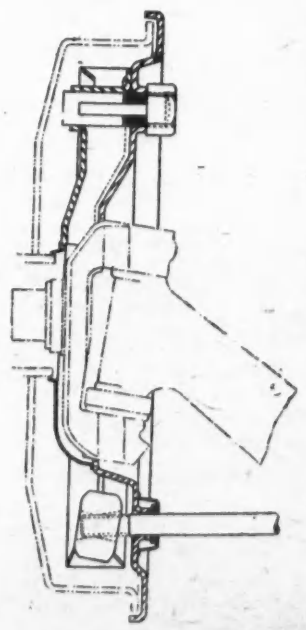
The adjustment construction consists of a stud with two tapered channel slots, into which fit the tapered ends of the forged shoes. Hence, longitudinal movement of the stud is all that is needed to adjust the shoes. The broached grooves in the adjustment create an audible click when passing over a ball forced out by a spring to insure an accurate predetermined withdrawal of the brake shoes from the drum by merely tightening up this nut and backing off a predetermined number of clicks. The adjustments at assembly are simply the adjusting of all nuts at the wheels by screwing them tight, so that there is an equal drag on all four wheels at the brake shoes; then the slack is taken up on the two brake rods at two adjustment points. Then the wedge nuts are backed off a predetermined number of clicks and the job is done. The manufacturers call attention to the fact that the method of adjustment is so flexible that it meets any requirement of manufacturers for assembly lines.

By means of the self-adjusting wedge, all four brakes may be adjusted by any one, it is pointed out, in less time than it takes to mount a car on a brake-testing machine.



THIS BLUEPRINT shows the adjustment for centralizing shoes in the drum. Also the equipment with ball and spring indicating click





FRONT AND CROSS SECTION views of the new Stewart-Warner wheel brake assembly

Pistons and Piston Rings And Their Effect in Engine Operation

THE following paper, read before a recent meeting of the Pittsburgh section of the S. A. E., by Ralph R. Teetor, vice-president in charge of engineering for the Perfect Circle Company of Hagerstown, Ind., is being published serially in Automotive Daily News. Mr. Teetor confined his discussion principally to pistons and piston rings and other motor parts which have a direct bearing on the performance of these parts.

By RALPH R. TEETOR

When the ring is inserted in the gauge, a very practical measurement of the outward pressure of the ring against the rollers can be ascertained by turning each roller between the thumb and finger. This gauge provides the most practical method generally known at the present time, and has contributed more to the development of determining correct radial wall pressure than any other instrument in general use.

There have been devised and are in use many other instruments for measuring the lesser important characteristics of rings, but they are not considered of sufficient importance to discuss further.

The real proof of all the theory and practice which has been stated heretofore, of course, rests in the results of the performance of the rings in motors operated under standard service requirements, and such tests have been made many times on engines in piston-ring testing laboratories. Such a standard test is conducted by connecting the admission side of an accurate gas meter to the breather of a motor connected to a dynamometer. Other openings from the crank case to the atmosphere are sealed, so that all of the leakage or blow-by which passes the pistons is forced to leave the crank case by the connection to and through the gas meter. Under such conditions the meter will, of course, record the total leakage in cubic feet for the duration of the test. Such a result, divided by the time covered by the test, will give the amount of blow-by per unit of time, which is a convenient comparison for measuring the performance of compression rings.

The effectiveness of the oil control ring is also determined during the same test by accurately measuring into the crank case, at the beginning of the test, the oil supply; then measuring the remainder of the oil from the crank case, at the completion of the test. The difference in the quantity of oil put in and taken from the motor furnishes an exact record of the total oil consumed. A series of such tests varying in speed are conducted so that the characteristic performance of the rings can be determined. A very interesting observation of such a series of tests reveals the speed at which all piston rings show a tendency to vibrate, or leave the cylinder walls; and this speed is usually indicated by an abrupt increase in the rate of blow-by and of oil consumption.

It is not uncommon to observe a record in which the blow-by may have doubled or tripled between two consecutive tests in which the speed was only increased 200 revolutions per minute. Equally as radical an increase in oil consumption may, or may not, occur at the same speeds as is indicated by the critical speed of the compression rings. There is, however, usually such a similar tendency to break down the performance of the oil rings, and that is the speed at which excessive oil consumption begins. The problem confronting the motor and piston ring engineer is that of raising these critical speeds above the driving range of motors. It is gratifying to know that it has been possible in the design of many of the newer types of engines, and latest piston rings, to raise these critical or breakdown periods to more than 4,000 revolutions per minute.

This is well above the speed at which motors turn, under average driving conditions. The importance of such performance may be explained by the fact that both excessive blow-by and oil consumption are two of the greatest known contributors to the destruction of pistons, rings and cylinders. The hot blow-by gases passing between the pistons, rings and cylinders burn from the bearing surfaces the lubricating oil, which action permits the direct metallic contact of the surfaces of these parts, and the result is rapid wear. The effect of excessive oil consumption is to provide an excessive amount of carbon deposit, much of which invariably finds its way down past the rings and becomes mixed with the lubricating oil. Such carbon is contaminated with road dust, which finds its way into the combustion chamber, and altogether the mixture forms an abrasive that also accelerates wear.

(To Be Continued)

AMMCO TO SHOW FULL TOOL LINE AT ATLANTIC CITY

Chicago, Nov. 20.—The Automotive Maintenance Machinery Company announces that its complete line of automotive maintenance tools will be on display at booths 526 and 527, at the M. E. A.-N. S. P. A. Show in Atlantic City, December 7-12. This line includes the Ammco dry and rigid cylinder grinders, No. 1 and No. 2 piston pin hole grinders, brake cylinder grinders, the new connecting rod aligner, crank pin tools, shackle and spring bolt service tools, the round-o-meter, and the Ammco service truck derrick.

With this line will also be displayed the complete lines of Ames gauges and Brubaker cutting tools for automotive service, inasmuch as the Automotive Maintenance Machinery Company is sole distributor of these products in the automotive field.

BUSSMANN TO EXHIBIT FUSES AT CONVENTION

St. Louis, Nov. 20.—The Bussmann Manufacturing Company of St. Louis, maker of Buss fuses and Buss lights, will exhibit for the first time at the N. S. P. A.-M. E. A. show at Atlantic City, December 7 to 12, a new radio fuse assortment.

Copying a similar step taken by the Bussman company in the automobile fuse field in 1926, when fuses were packed in a metal box on which educational fuse information was printed.

FABRIC GROUP'S ANNUAL MEETING ON DECEMBER 7

New York, Nov. 20.—The Fabric Auto Equipment Association, Inc., will hold its annual meeting at the Chelsea Hotel, Atlantic City, N. J., December 7.